

XXX.—*Botanical Notices from Spain.* By MORITZ WILLKOMM\*.

[Continued from p. 192.]

No. VII. SEVILLE, December 30, 1844.

ON the 5th of November, after a continuance of the most disagreeable rains for nearly four months, I quitted Granada and travelled the next day to Malaga. From the incessantly rainy and misty weather, I could see very little of the character of the vegetation from the diligence. The only specimens which I had not before seen were some bushes of the cork-oak, which I noticed on the second day of my journey. The environs of Malaga, situated as it is in a kind of paradise,—which in the spring is so rich in plants,—presented now little or nothing, although the surrounding hills began already to be decked with fresh green and gave signs of approaching spring. *Scilla maritima*, long faded, unfolded everywhere its broad dark green leaves, in company with Asphodels; but, with the exception of the ever-blossoming *Alyssum maritimum*, L., and some late plants of *Atractylis humilis*, L., there was scarcely anything in bloom to be remarked. The gardens presented more flowers than the country around. Upon the balconies I saw frequently the splendid *Euphorbia heterophylla*, in the gardens *Datura fastuosa*, *Brugmansia arborea*, *Verbena citriodora*, *Plumbago zeylanica*, *Cestrum nocturnum*, *Viola odorata*, *Calendula officinalis*, &c., and roses in full bloom. In a garden without the city I noticed several gigantic bushes of banana, and a noble tree of *Dracæna Draco* 16 feet high, which grows here quite as in its own climate. The Alameda of Malaga, a public promenade, is planted with large trees of *Gleditschia triacanthos*, *Melia Azedarach*, *Phytolacca dioica* and *Acacia Farnesiana*. In the environs batatas and oranges are much grown, as well as *Annona squamosa*, whose spicy and much-prized fruit is everywhere sold under the name of Chirimoyas.

As it was impossible, on account of the backward state of the season, to study the flora of Malaga from nature, I was greatly desirous of being allowed to do this in the rich herbarium of the chemist Don Pablo Prolongo, whose name is so well known from Boissier's 'Voyage': he is the only botanist at present in Malaga, and unfortunately, from great occupation of his time, he is able to do little for the natural history of his province. Don Prolongo has fortunately also preserved a portion of the herbarium of M. Felix Hänseler, whose death three years ago deprived science of an able botanist; the other portion of his collection is lost. At the desire of Don Prolongo, I undertook the agreeable task of putting in order his herbarium, which was in great confusion; and this gave me an opportunity of becoming generally acquainted with the character of the vegetation of Malaga, which I hope to study from nature also next April. Sometimes by myself, and sometimes accompanied by my friend, I made many excursions in the environs of the city du-

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ring my stay, although, as was to be expected at this season of the year, with little success. On moist grassy spots blossomed the *Ranunculus bullatus*, L., plentifully; in hedges and under impenetrable bushes of dwarf palms and thorny species of asparagus grew *Aristolochia batica* and *Melissa Calamintha*, and upon the arable fields in great profusion *Mandragora officinarum* in company with *Ecbalium Elaterium*. On the sea-shore I met with *Glaucium corniculatum* in abundance, which had already begun to blossom, or flowered a second time. On the fallow fields the *Verbena supina* began to shoot up its stalk, and on the adjoining hills the root-leaves of the rare *Diplotaxis Prolongi*, Boiss., appeared here and there. Upon an excursion into the neighbouring Sierra de Mijas I found *Viola arborescens*, L., already in full blossom, and the *Thymus capitatus*, Lk. and Hoffm., had also begun to flower. In fissures of the limestone rocks occurred frequent the *Lapiedra Martinezii*, Lag., but not a single specimen in flower, as well as *Cheilanthes odora* and *Lycopodium denticulatum*. Under groups of palms on the loamy plain known by the name of the Dehesilla, between the river Guadalhorce and the sea, I noticed here and there *Narcissus serotinus*, and some scattered plants of *Scilla autumnalis*, L. In hedges of Spanish reed in the vicinity of the shore I found tall luxuriant shrubs of *Tagetes graveolens*, L'Hérit., certainly run wild, and especially on the sea-shore often gigantic tree-like specimens of *Ricinus communis*, L. This is nearly all that can be said of the November flora of Malaga. The coast, which is mostly flat and sandy, presents also but few sea plants, like almost all the flat sandy coasts of the Mediterranean, where, from the absence of a tide, only rarely a few *Algæ* are cast up.

On the 1st of December I quitted Malaga, and, favoured by the most glorious spring weather, I travelled on horseback towards Seville; for the roads between these two cities are only to be found upon the map, but do not exist in reality—not a bit more than roads from Granada and Jaen to Seville! The corn-fields were already clothed in the most beautiful green, as with us in April, and the blossoms of the almond-trees were already far advanced. Everywhere there were still in flower the *Mandragora officinarum*, as well as *Alyssum maritimum* and *Aristolochia batica*, whilst the *Ranunculus bullatus* and *Balsamita multifida*, Clem., here plentiful, were apparently over. Here and there *Lavandula multifida* was seen in flower, and a small *Calendula*. In the immediate vicinity of Malaga commence arid hills and extensive tracts of uncultivated land, mostly covered with dwarf palms and species of asparagus. Several species of *Ulex* had already unfolded their beautiful yellow flowers. Beyond the small town of Cardama the land is better cultivated, and the banks of the neighbouring Guadalhorce are in many parts clothed with hedges of orange-trees, which were now loaded with golden fruit, and, together with the perfectly leafless fig- and apple-trees, which are found in great quantities in the intervening space, presented the appearance of summer and winter at the same time. On the branches of the olive-trees, whose shining black fruit the people were busied everywhere in gathering, I remarked frequently the *Vis-*

*cum cruciatum*, Sieb., with yellowish red berries, as well as here and there upon the banks luxuriant shrubs of *Viburnum Tinus*, with young blossoms. On the second day I reached the little town of Yunquera, lying at the foot of the lofty Sierra de la Nieve, to which I made an excursion on the 3rd of December, in spite of the violent rain and snow, which had set in the night before, in order to see the *Abies Pinsapo*, Boiss., and *Quercus alpestris*, Boiss. The first I met with at a height of 5000 feet, but arrived unfortunately too late, for the cones had long fallen off and lay quite withered upon the ground. The *Pinsapo* has the growth of the Scotch fir, but with respect to the bark and position of the branches it resembles the spruce fir, from which it is however very remarkably distinguished by the peculiarly short and thickly-set needles. I cannot say with certainty whether I have found the *Quercus alpestris*. Boissier remarks, that this oak grew in company with the *Pinsapo*. There are however two species of oak frequent here, one of which with evergreen leaves appears to be no other than the *Qu. Ilex*. The other, whose leaves had fallen off, may be the *Qu. alpestris*; but both had quite lost their fruit. In the shade of the adjacent rocks of marble a small *Iberis* blossomed in abundance, the only one which this excursion yielded; I returned to Yunquera wet through to the skin and half-killed by the cutting cold wind. On Wednesday the 4th of December I started again, and after passing through a part of the lonely, wild and rough Serania de Ronda, I arrived in the evening at the town of Ronda. The above-mentioned mountain, which at this season of the year presents nothing except species of *Ulex* (not yet in flower), although in its proper season it is one of the richest mountains in plants of Andalusia, is almost wholly covered with low bushes, chiefly of *Pistacia Lentiscus*, *P. Terebinthus*, *Rhamnus Alaternus*, *Rh. lycioides*, *Olea europæa*, var. *sylvestris*, *Juniperus Oxycedrus*, *J. phœnicea*, *Daphne Gnidium* and *Quercus coccifera*, as well as a number of *Cisti*. The large and beautifully situated town of Ronda is in summer one of the pleasantest spots in Andalusia, but in winter it is the coldest point, as on the following morning all the ditches and water-courses were covered with ice an inch thick and the fields with hoar-frost,—which is something extraordinary in this country. As soon however as we had passed one of the chains of hills covered with thick oak-woods, in which I noticed among others many species of *Helianthemum*, of course still without blossom, and had entered upon the broad and cheerful valley of the Rio Guadalete, I found myself at once in another and warm climate, in which a perpetual spring reigns. The banks of the above-mentioned river are mostly surrounded with the thickest bushes, 12 feet high, of *Pistacia Lentiscus* and *Nerium Oleander*, encircling whose branches a beautiful *Atragene* (?) occurred here and there in full blossom. In this valley I also found for the first time between groups of palms some few specimens of the odoriferous *Iris scorpioides*, Desf., which I have subsequently observed at Seville on loamy declivities, on the right bank of the Guadalquivir in great quantity and in full blossom. Between the villages of Algodonales and Puerto-Serranos, where I

lodged on the fifth night, is a pleasant but quite lonely and very unsafe table-land, almost wholly covered with *Pistacia Lentiscus*, which gives it a beautiful dark green colour. Among these I found single shrubs of *Phillyrea angustifolia*, *Ph. media* and *Arbutus Unedo*, the latter loaded with white bunches of blossom. At Puerto-Serranos, lying on the Guadalete, which from this point rushes in innumerable windings to the Atlantic Ocean, commences the immense broad land of the Guadalquivir. The Sierra de Montellano had still to be crossed,—an undulating plateau covered with pistacios and the kermes-oak, where I found the shrubby *Globularia Alypum*, L., in flower, and for the first time descried the Atlantic in the distance: upon this terrain, extending as far as the little town of Coronil, olive-trees and large groups of palms occur. The country from Coronil as far as the pleasant town of Utrera is an undulating arable land with scarcely a tree upon it, which, as the dried stalks showed, may in summer be covered with, in great part, *Atractylis cancellata*. On the 7th of December I at length rode, in the rain, which from that day to the present has continued almost uninterrupted, from Utrera to Seville, five leagues distant, the road to which leads almost continuously through olive-groves and forests of *Pinus Picea*.

The perfectly level environs of Seville, consisting of a sandy loamy soil, are said to be clothed in April and May with flowers, but I scarcely think the character of the soil is such as to produce any very remarkable flora. For, besides that the country is very level, it is almost all cultivated, with only occasional patches untilled. The heat of the climate of Seville, as I have been assured by Americans from the Havannah and Peru, is in the summer not exceeded by the glowing heat of the West Indies, and its spring is of short duration; as early as June everything is completely burnt up. In the summer a suffocating heat prevails, whilst in winter the air is not cold but disagreeably moist,—so moist, that in the chambers, which are always on the ground-floor, everything,—clothes, beds, books, paper, &c. are in a few hours wet through. This part of Andalusia especially, where snow is only known through tradition, is visited by a thoroughly rainy season, like the tropics. In spite of all my endeavours, I could not succeed in obtaining any dry paper, so that I could only preserve my plants from complete destruction by frequently turning and shifting them; for drying them was out of the question here, where nothing could be had to obtain artificial heat. I took advantage of the few fine days during my stay in the capital of Andalusia to make excursions in the neighbourhood, which at first the Guadalquivir, a mile in width, surrounding the whole city like a lake, utterly prevented. On the walls and ditches in the immediate suburbs I found *Mercurialis annua*, L., and the *Calendula*, which has been before mentioned, frequent; also in the latter part of my stay, on shady grassy spots, *Ficaria ranunculoides*, a *Fumaria* and a beautiful large-flowered yellow *Oxalis*, together with *O. corniculata*, frequent and in flower. Under the high corn I saw *Veronica hederifolia*, *V. verna*, *V. arvensis*, *Lamium purpureum*, *Capsella Bursa-*

*pastoris*; in short, the same spring flora as in our corn-fields, only some months later. On some uncultivated spots under clumps of palms I found *Allium Chamæmoly*, L., plentiful in flower, as well as *Arum Arisarum*, L., which occurred also in the olive-groves with *Corrigiola littoralis*, L., *Bellis annua*, L., and a small *Sisymbrium*? The banks of the Guadalquivir are clothed with *Tamarix gallica*, *Ricinus communis* and *Malvæ*; *Anacyclus Valentinus* already unfolded its flowering heads here and there, and on loamy declivities on the other side of the river the *Vinca major* with *Iris scorpioides* before mentioned, and *Doronicum Bellidiastrum*, flower in abundance. The hedges between the orange-groves for the most consisted of *Agave americana*, *Cactus Opuntia*, *Osyris alba* and *Lonicera Caprifolium*.

As the weather did not permit my making daily excursions, and as moreover the vegetation was so backward, I was not a little happy to have an opportunity of inspecting the valuable herbarium of the late botanist Don Claudio Boutelou, the pupil of Cabanilles, which contains above 15,000 species. The present possessor of this collection, Don Pablo Boutelou, son of the late botanist, had the kindness to place it at my disposal. In this herbarium I have not only in a great measure become acquainted with the flora of Seville, but also with the Spanish flora in general, as it contained a great portion of the collections of Clemente, Lagasca, and Cabanilles. M. Boutelou is the present professor of botany in the university of Seville, but he has almost wholly relinquished this branch of natural history, since he has neither any pupils, nor is he in the smallest degree assisted by the government. The botanical garden, of which he was the director, has been unavoidably given up for want of pecuniary resources, and it is at present a complete waste. Boutelou is also director of the gardens of the Alcázar and of the public walks, which, although at first laid out in the stiff French fashion, are kept up in a manner truly praiseworthy.

In the commencement of the approaching new year I think of visiting the town of Sanlúcar de Barrameda, lying at the mouth of the Guadalquivir, where I hope the vegetation will be more advanced, or at least that the shore will yield a richer harvest of maritime plants.

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#### BIBLIOGRAPHICAL NOTICES.

*A Monograph of the British Nudibranchiate Mollusca, with Figures of all the Species.* By Joshua Alder and Albany Hancock. London, printed for the Ray Society, 1845. 4to. No. 1.

THE ten plates in this number represent—1. *Doris flammea*, 2. *Doris Johnstoni*, 3. *Idalia aspersa*, 4. *Dendronotus arborescens*, 5. *Eolis alba*, 6. *Eolis concinna*, 7. *Eolis olivacea*, 8. *Eolis tricolor*, 9. *Eolis Farrani*, and 10. *Eolis despecta*. We have felt a difficulty, as we turned over the leaves to make this enumeration, to suppress the repeated expression of our delight. The figures of the species are admirable